

Project Title

To improve effectiveness of continuous enteral feeding management

Project Lead and Members

Project Lead: Tan Sin Yain

Project Members: Xiao Bing, Gillian Wee Hwee Li, Janet Chong Ngian Choo, Tan Teing Ee, Jasmine Ong Chiat Ling, Dahlia Binte Idris, Hii Yaa Wen, Hidayatul Alia

Organisation(s) Involved

National Heart Centre Singapore, Singapore General Hospital

Healthcare Family Group(s) Involved in this Project

Nursing, Medical, Pharmacy

Applicable Specialty or Discipline

Cardiothoracic

Project Period

Start date: Q4 2019

Completed date: Oct 2020

Aim(s)

To improve effectiveness of continuous enteral feeding management

Project Attachment

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

- Processes should be constantly reviewed
- Benchmark and continuous learning from research and specialist
- Always seek input and feedback from stakeholders' as they know best
- Buy-in from stakeholders is crucial to the success of the improvement initiative
- Continuous efforts and structured systems need to be in place for sustained results

We would have involved the patients' next of kin (NOK) in the process to educate and engage them in the process so as to give them a better perspective of how the clinical team provide medical care for the patients. It is often difficult for NOKs to comprehend why certain decisions are made for the patients, by engaging them in the improvement processes will allow them to be more involved in the patients' recovery process.

Conclusion

With the implementation of the GRV protocol, the cost and time spent related to unnecessary referrals to TPN treatment were eliminated.

Other than tangible benefits, patients benefited greatly from the improvements made as:

- it reduces risks of infection associated with central line and
- it promotes patient's comfort The new evidence-based approach has proven to help them better manage the patients in their care and at the same time save precious manpower.
- It also free up the healthcare manpower and bed resources. As more beds are freed up, we are able to admit more patients who require treatment and procedures.

The project team aim to share our achievement with ICUs in other hospitals, ensuring effective treatment in every aspect of patient's care. Ensuring good quality of care of

our patients while they are receiving treatment in the ICU is in line with organization's goals of providing quality healthcare and being the centre of excellence in medical service.

Additional Information

Since October 2020, the developed GRV protocol was adopted and implemented across NHCS and SGH's ICU and wards.

To ensure project is sustainable:

- SOPs were created and documented in the nursing policy. Once the SOP was approved by the management, demonstrations with hands-on practice were carried out before the final roll out.
- Briefing and hands on sessions are part of the orientation to ensure continuity of practice and sustenance of results.
- Random audits were carried out to ensure the management of continuous enteral feeding is practiced correctly. Monthly audits showed nurses had complied with guidelines developed. The guidelines have empowered nurses to manage patients on continuous enteral feeding confidently before escalation to next level. Data collection of quarterly number of unnecessary referrals before and after the project implementation shown a great reduction and completely elimination of unnecessary referrals for the period between the 3rd quarter of 2019 till date. The sustained result is a good testament of the project's success.

Multiple teaching and sharing sessions were carried out by our nursing team, medical teams and NSS team to engage all the stakeholders, ensuring their buy-in and acceptance. Enhancement were made based on feedback received.

Project Category

Care & Process Redesign, Quality Improvement, Workflow Redesign, Job Effectiveness, Valued Based Care, Safe Care, Risk Management

Keywords

Continuous Enteral Feeding, Unnecessary Referral, Nutrition Service Support Team

Name and Email of Project Contact Person(s)

Name: Tan Sin Yain

Email: tan.sin.yain@nhcs.com.sg

To Improve Effectiveness of Continuous Enteral Feeding Management

BACKGROUND

Ineffective management of continuous enteral feeding results in patients' malnutrition which leads to a delay in recovery and wound healing. While patients waited up to 8 hours for the review by the Nutrition Service Support (NSS) team, patients suffer from electrolytes imbalance where they may experience arrhythmia. Furthermore, patients are referred for total parenteral nutrition (TPN) when it is not required. This may endanger patients' safety causing hypoglycemia which leads to drowsiness and unresponsiveness. Therefore, more needs to be done to improve the management of continuous enteral feeding.

TARGET

- 100% Audit results on nurses' compliance on management of continuous enteral feeding
- Eliminate unnecessary referral by 100%

METHODOLOGY

Root causes

Lack of in-depth teaching and practical training in continuous enteral feeding

- Current training materials are not comprehensive enough
- A one-time training is delivered to staff during orientation program and focused on basic concept of enteral feeding

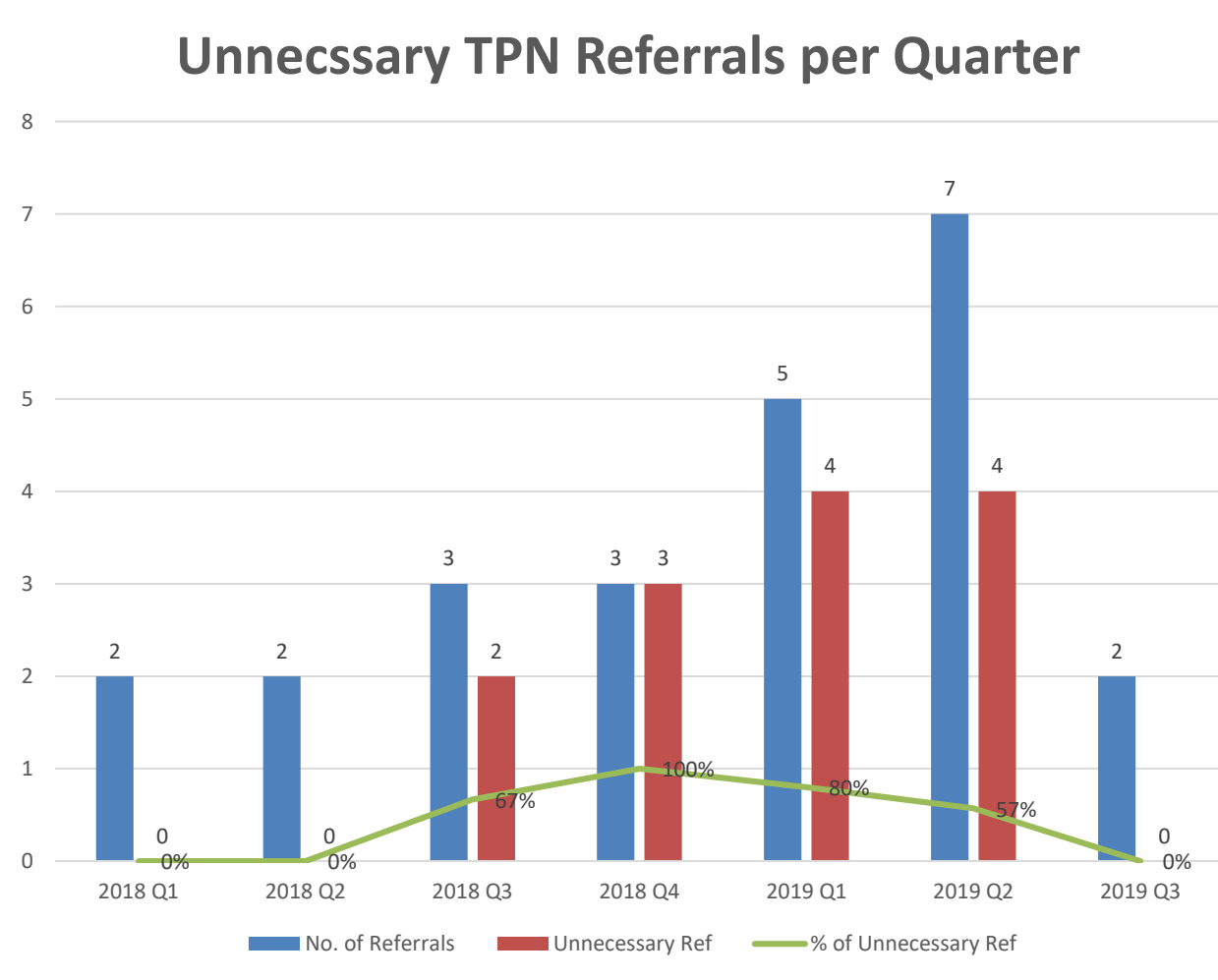
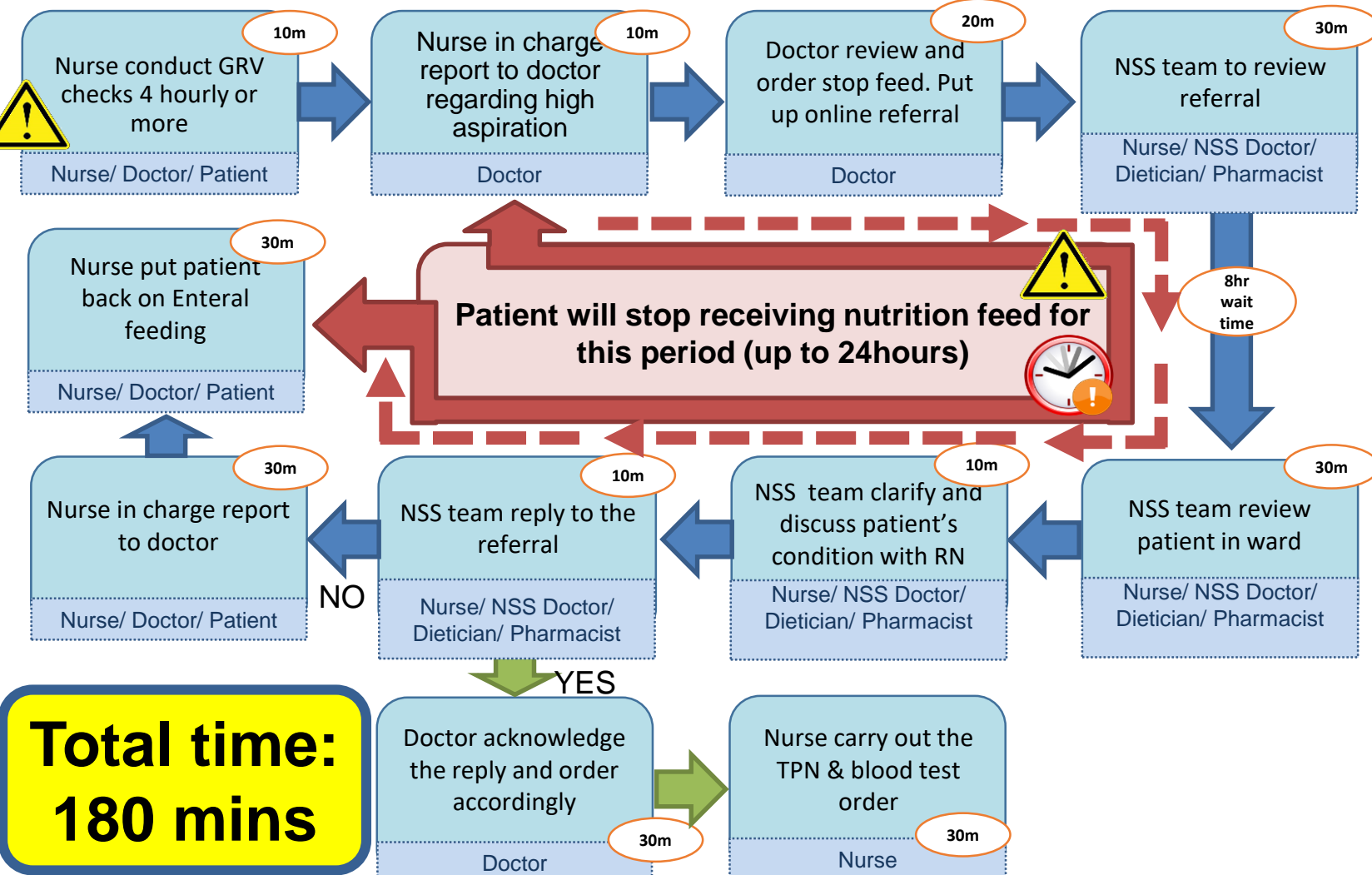
No standard practice for continuous enteral feeding and GRV checking

- No existing guides on frequency to check gastric residual volume (GRV) and management of continuous enteral feeding based on patients' varying GRV levels

No standard procedure for NSS referral

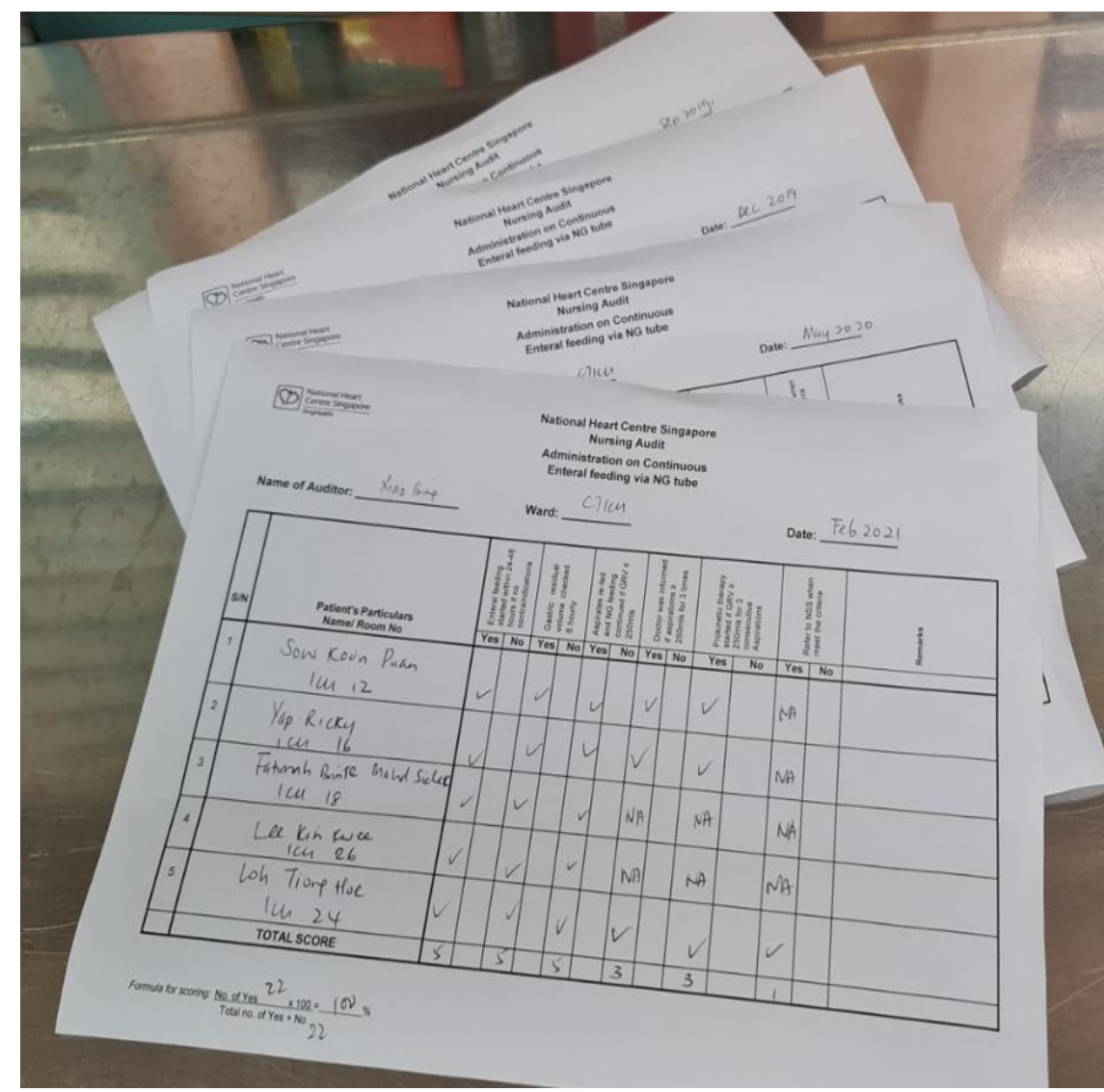
- Highly dependent on judgement which depends on different doctor's experience and opinion

Referral Process



RESULTS

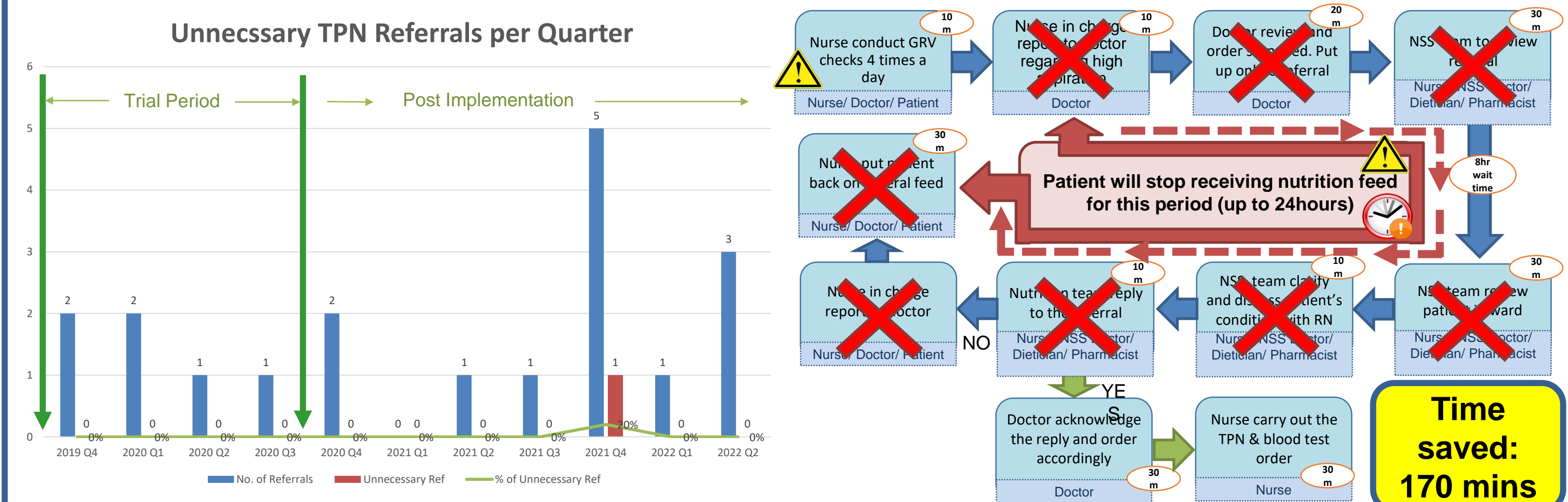
Target Met: Achieved 100% audit results on compliance



Audit criteria:

- Enteral feeding started within 24-48 hours if no contradictions 100%
- GRV checked 6 hourly 100%
- Aspirates re-fed and NG feeding continued if GRV ≤ 250mls 100%
- Doctor informed if aspirations ≥ 250mls for 3 times 100%
- Prokinetic therapy started if GRV ≥ 250mls for 3 consecutive aspirations 100%
- Refer to NSS when meet criteria 100%

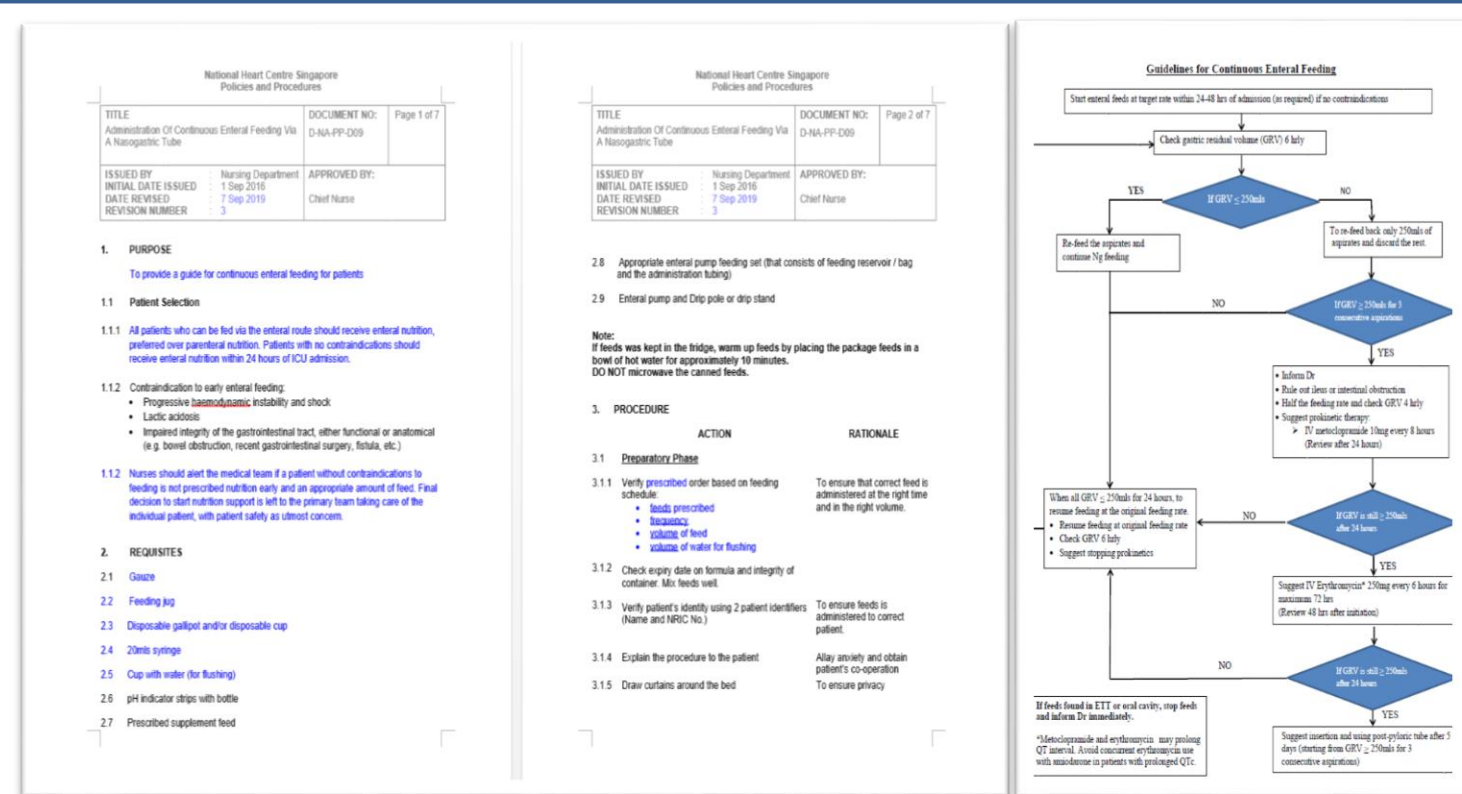
Target Met: Eliminated unnecessary referrals



Solutions

- Conduct teaching and hands on training through roadshow and roll call for doctors and nurses

- Develop standard guidelines for continuous enteral feeding, GRV checking and NSS referral with NSS team



- Use of alternative medicine for patient who has potential problems to avoid complications

- Assign a senior doctor and pharmacist as resource person when the team has any doubts

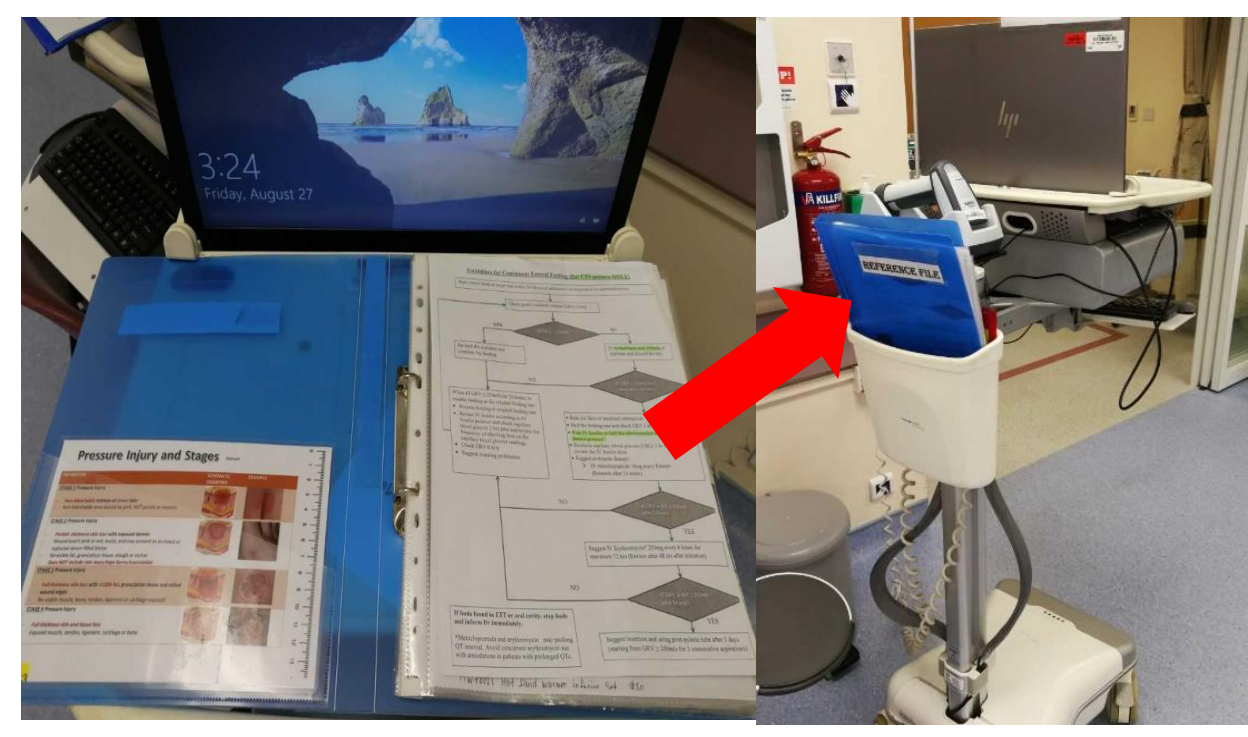
- Hardcopy of simplified guidelines are printed for nurses to have easy reference. This is included in the reference file attached to the Computer on Wheel (COW).



To Improve Effectiveness of Continuous Enteral Feeding Management Team Members

When in doubt/clarification needed, please contact any of the following members for clarification:

Name	Department	Contact number
Prof Tan Teong Ee	Medical	
MC Tan Sze Yain	Nursing	
APN Subhana Sate Sidi	Nursing	
APN Gillian Wee	Nursing	
ANC Melayah Alfa Bin Ahmad	Nursing	
SNH Hui Tian Wen	Nursing	
SNH Xiao Bing	Nursing	
SNH Janet Chong	NSS Specialty care	
Pharmacist Joonhee Ong	Pharmacist	



CONCLUSION

Improving the effectiveness of continuous enteral feeding management can reduce risks of malnutrition, hypoglycemia and arrhythmia in patients. Additionally, it increases efficiency and provide greater satisfaction for all the stakeholders (nurses, doctors, patients and NSS team). This improvement can be brought to the general wards in National Heart Centre Singapore and can be modified to suit the different needs of the different departments in other hospitals.

Total nutrition feed cost savings per annum

$$\$1947.50 \text{ Cost savings per patient} \times 13 \text{ Patients} = \$25,317 \text{ per annum}$$

Patient saving on hospitalisation per annum

$$65 \text{ Bed days} \times \$1049.67 \text{ Per day} = \$68,228 \text{ per annum}$$

Average savings from 13 unnecessary referrals
13 x 5 Bed days

Total patient cost savings = \$93,545 per annum

Manpower savings: Attending to unnecessary NSS referrals for TPN = 36.8 hours

Manpower savings: Attending to patients on TPN for 5 days = 65 hours

Total time saved = 101.8 hours

Intangible results

Patients' benefit

Promote wound healing, save on hospitalization bills, able to achieve adequate nutrition, reduce ICU stays, start oral feeding earlier, patients are comfortable

Stakeholders' feedback

Greater confidence in the management of patients' condition and in providing the best care for patients, less complications since patients are "well-fed", better knowledge in continuous enteral feeding management, nurses can better manage patients' nutrition needs without referral to NSS team

Improved quality of care

Reduce risk of hypoglycemia and arrhythmia, reduce likelihood of malnutrition which delays recovery, more manpower and time saved for quality patient care, improve efficiency in delivery of care